



April 22, 2022

Via Email/Sharefile

Ms. Julia Galayda
NJ Department of Environmental Protection
401 East State Street
Trenton, New Jersey 08625

**Re: Response to Comment Letter – Pre & Post Closure Groundwater Sampling
Plan for AOC 3: No. 1 Landfarm (January 26, 2022)
Hess Corporation Former Port Reading Complex (HC-PR)
750 Cliff Road
Woodbridge, Middlesex County, New Jersey
NJDEP PI# 006148
ISRA Case No. E20130449
EPA ID No. NJD045445483**

Dear Ms. Galayda:

Earth Systems, Inc. (Earth Systems) has prepared this letter on behalf of Hess Corporation (Hess) regarding the January 26, 2022 Comment Letter provided by New Jersey Department of Environmental Protection (NJDEP) relating to the *Pre & Post Closure Groundwater Sampling Plan for AOC 3: No. 1 Landfarm* submitted on August 25, 2021.

NJDEP Comments & Earth Systems/Hess Responses

NJDEP Comment 1: July 9, 2018, Department Letter – Comments on Section 6.4: The Department provided comments regarding the No. 1 Landfarm on July 9, 2018. These comments, especially Section 6.4, should be considered in the sampling plan and should be attached in the correspondence documentation. A copy of the comment letter is attached to the email correspondence.

Earth Systems/Hess Response 1: The July 9, 2018 comments have been reviewed and are addressed in this response (including both the responses below and the leachate

sampling addendum attached to this letter). A copy of the July 9, 2018 comments has been included with this response for reference purposes (See **Addendum A**).

NJDEP Comment 2: Regulatory Background: It is the Department's understanding that the No. 1 Landfarm did not operate under interim status but was a RCRA Part B permitted unit before it received wastes. This should be clarified but is not critical to the review of the sampling plan.

Earth Systems/Hess Response 2: As per the USEPA's Envirofacts website, the landfarm's "Legal Operating Status" is listed as "Interim Status" for 1980 and 1983 and "Permitted – Inactive/Closing, But Not Yet RCRA Closed" in 1997. The description of the No. 1 Landfarm can be changed to, "Permitted – Inactive/Closing" for future report submittals. Please advise as to how the Department would like the No. 1 Landfarm referenced.

NJDEP Comment 3: Conceptual Site Model: A CSM specific to the No. 1 Landfarm area is needed that considers the information likely to influence the ground water monitoring program and interpretation of the results, such as:

- Range of tidal fluctuation at the No. 1 Landfarm in the North Ditch and at monitor wells
- Ground water – surface water interaction at peak high tide, peak low tide
- Variations in ground water flow conditions that need to be considered in sample collection time
- If it was determined that the North Ditch does not receive ground water recharge at peak low tide, please discuss how this was determined. The higher ground water elevations compared to the surface water elevations provided on the contour maps indicate that ground water would discharge to surface water.
- For future reference, the construction drawings from the November 1, 2019 response to comments should be included with the ground water sampling plan as an appendix, along with the well construction records and boring logs from the Well Manual, and the 2018 Key Environmental boring locations and logs.

Earth Systems/Hess Response 3: The North Drainage Ditch, identified as Area of Concern (AOC) 104, will be investigated as a separate AOC and as part of the Sitewide ecological investigation. The information requested above (such as groundwater to surface water discharge evaluation and tidal stages) will be evaluated and addressed as part of that investigation. All information identified as needed above will be addressed in that investigation, but not as a stand-alone CSM for this specific AOC. As discussed below in Response 8, an investigation workplan will be submitted for review prior to conducting any investigation activities for the North Drainage Ditch.

The requested documents (a copy of the approved Remedial Action Design and well records/logs) have been included with this submittal.

NJDEP Comment 4: Monitor Well Locations - New: Existing wells are included in the sampling plan. The existing wells are screened across the water table (except BG-2 and BG-3, and sometimes SP-3, which are in upgradient areas). However, based on the more recent contour maps (copies attached), most wells are in upgradient to side-gradient locations relative to the treatment areas of the landfarm.

L1-2 and L1-3 are about 50' away from the treatment area limits within the outer berms and are on downgradient flow paths from portions of the treatment areas. The wastewater management units (manhole, oil/water separator, oil sump, leachate sump) located outside of, or at, the northern corner of the No. 1 Landfarm treatment area are not characterized by L1-2 or L1-3. The leachate sump is 40' long and was built by joining five (5), 8-foot reinforced concrete pipe sections together.

- A. A description of sealing of the sections of pipe connections was not located in the AWARE drawings. In addition, the landfarm leachate drainage line exits the clay liner to connect to the leachate sump in this area. Monitoring of water quality in the leachate tank area is needed based on the tank use.

Earth Systems/Hess Response 4A: Construction drawings regarding the sealing of leachate piping connections have not, to date, been located. Since it is not known if/how the leachate piping connections are sealed; Earth Systems/Hess proposes to install a monitoring well downgradient of the leachate piping run that is located outside of the landfarm limits (see **Figure 1**). This proposed monitoring well will be sampled on a quarterly basis for the following parameters: Target Compound List VOCs (TCL VOCs), TCL Semi-Volatile Organic Compounds (TCL SVOCs), Target Analyte Metals (TAL metals), and ammonia. At least four (4) quarterly rounds of groundwater samples will be collected from this monitoring well. If the results are below applicable Groundwater Quality Standards (GWQS), a modification of sampling frequency and/or parameters will be proposed. Please see **Addendum B** which includes a summary of proposed groundwater sampling for existing wells and proposed monitoring wells.

Please note that even though it is not known if the leachate piping connections are sealed; the No. 1 landfarm is surrounded on all sides by six (6) monitoring wells that are sampled on a quarterly basis and an additional three (3) monitoring wells that are sampled on an annual basis. The following is a brief summary of the 2021 analytical results:

- January 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
 - Targeted VOCs detected at concentrations less than GWQS
 - Targeted SVOCs – benzo(a)anthracene was detected greater than GWQS in one sample (well BG-2)
 - Metals – aluminum, arsenic, iron, lead, manganese, and sodium detected at concentrations greater than GWQS
- April 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
 - Targeted VOCs detected at concentrations less than GWQS

- Targeted SVOCs – benzo(a)anthracene was detected greater than GWQS in one sample (well BG-2)
 - Metals – aluminum, arsenic, iron, manganese, and sodium detected at concentrations greater than GWQS
- July 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
 - Targeted VOCs detected at concentrations less than GWQS
 - Targeted SVOCs detected at concentrations less than GWQS
 - Metals – aluminum, arsenic, iron, lead, manganese, and sodium detected at concentrations greater than GWQS
- October 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
 - Targeted VOCs detected at concentrations less than GWQS
 - Targeted SVOCs detected at concentrations less than GWQS
 - Metals – aluminum, arsenic, iron, manganese, and sodium detected at concentrations greater than GWQS
- December 2021 Annual (SP-1, SP-2, and SP-3)
 - Targeted VOCs – tetrachloroethene detected over the GWQS in one sample (well SP-2)
 - Targeted SVOCs – bis(2-ethylhexyl)phthalate detected over the GWQS in one sample (well SP-3)
 - Metals – aluminum, arsenic, iron, lead, and manganese detected at concentrations greater than GWQS

- B. Monitoring of water quality in the northern corner of the landfarm is needed to represent water quality that travels under the majority of the treatment area.

Earth Systems/Hess Response 4B: Based on this comment, one (1) additional monitoring well is proposed to be installed and included in quarterly groundwater monitoring for the No. 1 Landfarm. See **Figure 1** for the location of the proposed monitoring well. The monitoring well will be installed on the interior side of the fence in the northern corner of the No. 1 Landfarm. The monitoring well will be constructed with similar well construction details as the other No. 1 Landfarm wells. The proposed monitoring well will be sampled on a quarterly basis for TCL VOCs, TCL SVOCs, TAL metals, and ammonia. Please see **Addendum B** which includes a summary of proposed groundwater sampling for existing and proposed monitoring wells.

NJDEP Comment 5: Leachate Sump Monitoring: The leachate sump is to be maintained during/after capping and until no leachate is generated. The soil sample methods (composite samples, three separate intervals) and leachate sample methods (historic, current) were/are not conservative for the assessment of VOCs. The current leachate

sample is also not specific to the leachate sump based on the Semi-Annual Groundwater Monitoring Report response to comments dated August 19, 2021 (response #8).

- A. Leachate sampling was not discussed as part of the sampling plan per the Department's July 9, 2018 comments. Please discuss leachate sampling.

Earth Systems/Hess Response 5A: Please see **Addendum B** for a discussion of current and proposed leachate sampling.

- B. Historic leachate samples were obtained prior to discharge to the manhole and mixing with any stormwater. The current sample is a combined stormwater-leachate sample prior to entering the treatment system. A leachate specific sample is needed and leachate data from the period prior to modification to sample after mixing with storm water should be evaluated for COCs.

Earth Systems/Hess Response 5B: The above information is incorrect. There is a gate valve present at the manhole that allows stormwater to be mixed with the leachate. The gate valve is always closed and during Earth Systems' operation of the treatment system, stormwater has not been mixed with leachate.

- C. Modifications are needed to access the sump for liquid level gauging and for sump leachate sampling by a method that is conservative for all COCs, including VOCs.

Earth Systems/Hess Response 5C: Please see **Addendum B** for a discussion of current and proposed leachate sampling methods.

- D. Monitoring of leachate volume pumped out, and reduction over time, will be needed to assist in evaluating the effectiveness of the cap.

Earth Systems/Hess Response 5D: Leachate volumes will be monitored as part of the existing discharge permit requirements.

NJDEP Comment 6: Proposed Ground Water Sampling Plan: Hess has been conducting quarterly sampling at L1-1 through L1-4, BG-2 and BG-3. SP-wells were sampled in 2021. The August 2021 proposed sampling plan includes: removal of BG-wells; inclusion of SP-1, 2 and 3 wells for four (4) sampling events for VOC+15 followed by evaluation for continued VOC sampling; exclusion of L1-wells from VOC sampling based on historic data; all SP-wells and L1-wells will be sampled quarterly for SVOC+TICs, TAL metals, and ammonia.

- A. Please clarify the status of the BG-wells in the sampling and/or gauging plan.

Earth Systems/Hess Response 6A: The BG wells will be sampled on a quarterly basis for TCL SVOCs, TAL metals, and ammonia. These wells will not be sampled for TCL VOCs since results for the BG wells have been below GWQS for the last eight (8) rounds of groundwater sampling for these

compounds. At least four (4) quarterly rounds of post closure groundwater samples will be collected from these monitoring wells. If the results are below applicable GWQS, a modification of sampling frequency and/or parameters will be proposed. These wells will provide additional side-gradient analytical results. Sampling of the BG wells was explained in the *Pre & Post Closure Groundwater Sampling Plan Section 5* and is also explained in **Addendum B**, included with this letter.

- B. Based on contour maps, the SP-wells will provide additional upgradient and side gradient monitoring locations relative to the land treatment area. Please confirm.

Earth Systems/Hess Response 6B: Correct. The SP wells will provide additional upgradient and side-gradient analytical results.

- C. Downgradient VOC+TIC sampling at the L1-2 and L1-3 locations should be sampled at peak low tide (if tidal fluctuations are an issue) at least annually.

Earth Systems/Hess Response 6C: Monitoring wells L1-2 and L1-3 will be sampled annually at low tide, if tidal fluctuations are identified to be impacting the wells. (See NJDEP Comment 3 and response above)

- D. See Item 4, above, concerning ground water monitoring at the sump and north corner of the landfarm.

Earth Systems/Hess Response 6D: See Response 4A and 4B regarding proposed additional groundwater monitoring locations for the No. 1 Landfarm.

- E. Please include table(s) for proposed sampling: well construction and survey information for all sampled and/or gauged wells from the Well Construction Summary Table in Well Manual; sampling plan – well ID, sample parameters and frequencies; and well gauging plan – well ID, staff gauge ID, frequency

Earth Systems/Hess Response 6E: The applicable section of the November 19, 2021 Approved Well Manual (pertaining to the No. 1 Landfarm monitoring wells) has been included with this submittal.

- F. Provisions to identify tidal stage during ground water gauging and sampling events is needed.

Earth Systems/Hess Response 6F: Going forward, the tidal stage will be recorded during gauging and sampling activities conducted for the No. 1 Landfarm. The tidal stage will be recorded on the gauging spreadsheet and the low flow groundwater sampling form.

NJDEP Comment 7: Please clarify the site characterization sampling conducted at the manhole, oil/water separator, oil sump and leachate sump to evaluate any release for potential investigation, remediation and/or monitoring.

Earth Systems/Hess Response 7: The above referenced features are identified as AOC 35 and include three (3) concrete sumps that functioned as an oil/water separator prior to historically pumping the discharge to the API Separator (AOC 34). This equipment is no longer operational (since approximately 2013). This AOC was investigated during the Site Investigation (SI). Additional evaluation will need to be conducted to determine the next steps regarding decommissioning of these features and further investigation. A supplementary scope of work will be provided to the NJDEP and EPA regarding proposed investigation/remediation activities for AOC 34.

NJDEP Comment 8: Landfarm wastewater management systems, including storm water and leachate, and ground water that flows toward the northern corner of the No. 1 Landfarm, discharges to the North Ditch. The ditch needs to be investigated in the Ecological Evaluation. Surface water, soil and/or sediment will need to be collected to characterize the North Ditch.

Earth Systems/Hess Response 8: The North Drainage Ditch, identified as AOC 104 will be investigated as part of the Sitewide ecological investigation. An investigation workplan will be submitted for review at least 90 days prior to conducting any investigation activities in the North Drainage Ditch, per our standard review agreement with the Department.

Should you have any questions or require additional clarification or information, please contact me at 732-739-6444 or via e-mail at ablake@earthsys.net. If you have any questions relating to the project and schedule moving forward, you can also contact Mr. John Schenkewitz of Hess Corporation at 609-406-3969.

Sincerely,



Amy Blake
Sr. Project Manager

- c. Mr. Joseph Nowak, NJDEP (via Sharefile)
- Mr. Sameh Abdellatif, EPA (via Sharefile)
- Mr. John Schenkewitz – Hess Corporation (via e-mail)
- Mr. Rick Ofsanko – Earth Systems (via e-mail)
- Mr. John Virgie – Earth Systems (via e-mail)

ADDENDUM A

Excerpt: July 9, 2018 (No. 1 Landfarm NJDEP Comments – Leachate and Groundwater)

- Leachate system monitoring is required:
 - The leachate collection system (treatment basin piping, sumps, oil/water separator, piping between all units, etc.), must be described and located. Access to any part of the leachate management system (other than the piping that is within the clay lined basin) should not be prevented by the cap construction for monitoring/maintenance.
 - [See Figure 1](#)
 - The leachate collection and management system must be evaluated to identify the most conservative sample collection location and method for VOCs.
 - [See Addendum B](#)
 - The location of the leachate collection system structures must be shown with the ground water monitor well locations. Additional ground water monitoring location(s) may be required.
 - [See Figure 1 and Addendum B](#)
 - Leachate generation should decrease after capping of the unit. Leachate volumes after capping must be evaluated over time to determine if the cap or the clay liner is or may be compromised.
 - [See Response 5D](#)
 - Modifications to the leachate collection system, including removal or abandonment of system components, should be evaluated if leachate generation after capping is eliminated.
 - [As per the approved Remedial Action Design, “Following the construction of the cap system and attendant reductions in leachate generation, an evaluation will be conducted to determine if the reduction of leachate will allow for operation of the leachate collection system to be discontinued.” Once this occurs, a recommendation regarding removal or abandonment of the leachate system components will be made.](#)
 - Leachate sampling is required in conjunction with ground water sampling (when leachate is generated), and include the same parameters.
 - [See Addendum B](#)

ADDENDUM B

Leachate Sampling Plan

The following is a brief summary of the current leachate sampling conducted as part of groundwater monitoring at the No. 1 Landfarm. This summary does not include details pertaining to the post-treatment leachate sampling conducted as part of the New Jersey Pollutant Discharge Elimination System (NJPDES) permit requirements.

Sample Collection Methods

A leachate sample is currently collected via a sampling port located inside the treatment shed prior to exposure to any treatment vessels. The leachate sample port is preceded by leachate collection piping which gravity feeds into an underground sump, then is pumped by a submersible transfer pump to a lift station. The leachate is then pumped by a submersible transfer pump from the lift station to the treatment shed. The NJDEP is concerned that the current sample collection method could potentially bias the results for Volatile Organic Compounds (VOCs) low. Please note that (as summarized below) VOC results have been consistently below Groundwater Quality Standards (GWQS). Also, the landfarm is surrounded by six (6) groundwater monitoring wells that are sampled on a quarterly basis. Groundwater samples collected from all of these monitoring wells have also been consistently below GWQS for VOCs as well. However, the collection of the leachate sample can be modified going forward and be collected via a bailer from the existing leachate sump. The leachate within the existing sump can be accessed via vertical piping that currently houses the liquid level sensor, which can be temporarily removed during sampling events and immediately replaced to continue normal operations.

Analytical Results

A pre-treatment leachate sample is currently collected on a tri-annual basis and analyzed for VOCs, Semi-Volatiles (SVOCs), Pesticides, Polychlorinated Biphenyls (PCBs), metals, and general chemistry parameters (chloride, cyanide, ammonia, and phenols). The following is a summary of the last two (2) years of leachate data (exceedances only).

Leachate Sample	GWQS	10/4/2021	7/6/2021	4/21/2021	12/11/2020	6/20/2020	1/20/2020
VOCs		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
SVOCs		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
Pesticides		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
PCBs		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
Metals							
Arsenic	3	11.3	6.3	ND	2.96	11	3.9
Nickel	100	54.4	40	64	252	127	208
General Chemistry							
Ammonia (ppm)	3	2.9	0.54	ND	NA	NA	NA

Modified Proposed Sampling Plan

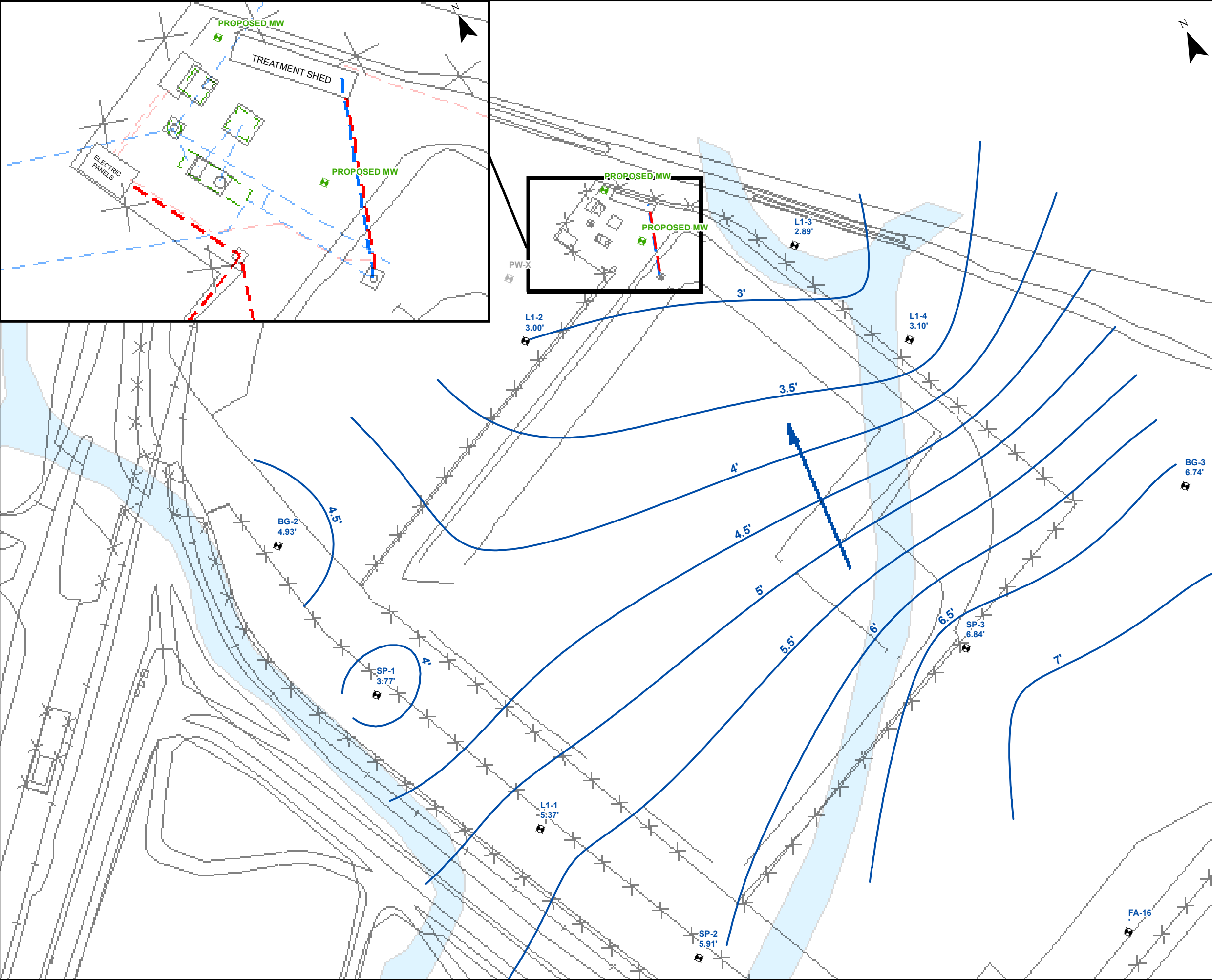
Going forward, pre-treatment leachate samples will be collected quarterly (at the same frequency as groundwater samples) and will be analyzed for the same parameters as the groundwater samples. As explained above, the sample that will be analyzed for VOCs will be collected via the existing leachate sump via bailer.

The following table below summarizes the proposed groundwater sampling plan for the No. 1 Landfarm. This plan has been modified from the plan that was originally included in the *Pre & Post Closure Groundwater Sampling Plan* and now includes the additional two (2) proposed monitoring wells and leachate sample collection as well.

Sample ID	Frequency	Parameters	Location
Leachate (Pre-Treatment)	Quarterly *	TCL VOCs + Tics, TCL SVOCs + TICs, TAL Metals, Ammonia	Not Applicable
SP-1, SP-2, and SP-3	Quarterly	TCL VOCs + Tics**, TCL SVOCs + TICs, TAL Metals, Ammonia	Up- gradient/Side- gradient
L1-1 through L1-4	Quarterly	TCL SVOCs + TICs, TAL Metals, Ammonia	L1-2 and L1-3: down-gradient, L1-1: up- gradient, and L1-2: side- gradient
BG-2 and BG-3	Quarterly	TCL SVOCs + TICs, TAL Metals, Ammonia	Side-gradient
Proposed Wells	Quarterly	TCL VOCs + Tics, TCL SVOCs + TICs, TAL Metals, Ammonia	Down-gradient

*Leachate samples will be collected until only a de minimus amount of leachate is being produced. Leachate volumes are expected to decrease following capping of the landfarm.

**A modification of sample parameters may be requested once four (4) quarters of analytical results are below applicable GWQS.



Legend

- Monitoring Well
- Proposed Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Underground Utilities**
 - Active Electric
 - Active Piping
 - Inactive Electric
 - Inactive Piping
 - Underground Sump
- Former Smith Creek Channel

L1-2 Well I.D.
3.00' Water Elevation (ft bgs)

NOTE:

1. All wells gauged on April 14, 2022

2. Underground Utilities are an estimation based off of:

- 1989 Construction Plans Modifications by Amerada Hess Corp
- June 2018 GPR Survey by American GeoPhysics Inc.
- Key Environmental Inc. Existing Site Conditions Plan 11/11/2019

Actual site conditions may not reflect conditions indicated on figure.



FIGURE: 1
APRIL 2022
GROUNDWATER CONTOUR
WITH PROPOSED MONITORING WELL
LOCATIONS

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	4/19/2022
SRP PI#:	006148	Drawn By:	RC



Earth Systems
Environmental Engineering
1625 Highway 71, Belmar, NJ 07719
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

Former Hess Port Reading Complex
750 Cliff Road
Port Reading NJ
Port Reading No. 1 Landfarm Monitoring Well Construction Table

Well ID	AOC	Permit Number	Status	Block	Lot	Latitude			Longitude			Northing	Easting	TOC Elevation (ft)	Ground Elevation (ft)	Survey Date	Diameter (in)	Screen Length (ft)	Screen Interval (bgs, ft)	Screen Interval (TOC, ft)	Stick-Up Height (TOC - Ground Elev., ft)	Screen Type	Casing Length (ft)	Depth of Well (bgs, ft)	Depth of Well (TOC, ft)	Gauged DTB from TOC (11/5/2020)	Gauged DTB from TOC (11/19/20)	Install Date	Permit Date	Use	Well Log Provided (Yes/No)	Decommissioning Documentation
						°	'	"	°	'	"																					
BG-1	3	2600009305	Abandoned	756	3	40	33	43.32	74	14	31.85	630664	562773	10.99	12.25	6/26/1986	4	20	24-44	25.29-45.29	Flush Mount	.020 PVC	25.29	45.29	45.29	--	--	6/27/1986	6/25/1986	MONITORING	Yes	Yes
BG-2	3	2600008132	Active	760.02	1	40	33	43.57	74	14	30.60	629776	563850	6.96	7.16	12/21/2017	4	5	4-9	4-9	Flush Mount	.020 PVC	4	9	9.00	8.95	--	10/18/1985	10/16/1985	MONITORING	Yes	--
BG-3	3	2600011432	Active	760.02	1	40	33	41.07	74	14	21.70	629526.83	564537.71	10.31	7.7	12/9/2014	4	5	5-10	7-12	2.61	.020 PVC	7	10	12.00	11.25	--	9/16/1987	9/3/1987	RECOVERY	Yes	--
L1-1	3	2600008068	Active	760.02	1	40	33	40.67	74	14	29.29	629483	563952	9.91	10.14	12/21/2017	4	10	4.25-14.25	4.25-14.25	Flush Mount	.020 PVC	4.25	14.25	14.25	13.45	14.2	10/18/1985	10/1/1985	MONITORING	Yes	--
L1-2	3	2600008065	Active	760.02	1	40	33	44.26	74	14	27.38	629846.79	564098.56	9.05	7.63	12/9/2014	4	10	4-14	5.5-15.5	1.42	.020 PVC	5.5	14	15.50	14.37	14.75	10/18/1985	10/1/1985	MONITORING	Yes	--
L1-3	3	2600008066	Active	760.02	1	40	33	44.09	74	14	24.41	629830.29	564327.89	9.33	8.31	12/9/2014	4	5	5.4-10.4	6.4-11.4	1.02	.020 PVC	6.4	10.4	11.40	10.20	11.2	10/19/1985	10/1/1985	MONITORING	Yes	--
L1-4	3	2600008067	Active	760.02	1	40	33	43.04	74	14	23.71	629723.85	564382.18	10.85	9.07	12/9/2014	4	5	4-9	6-11	1.78	.020 PVC	6	9	11.00	11.30	--	10/18/1985	10/1/1985	MONITORING	Yes	--
L1-6	3	2600011434	Abandoned	--	--	--	--	--	--	--	--	--	--	--	--	--	4	10	4-14	6-16	2	.020 PVC	6	14	16.00	--	--	9/15/1987	9/3/1987	RECOVERY	Yes	No
SP-1	3	2600025338	Active	760.02	2	40	33	42.17	74	14	30.29	629634	563875	8.95	9.17	12/21/2017	2	10	3-13	3-13	Flush Mount	.010 PVC	3	13	13	12.71	--	6/6/1991	6/4/1991	PIEZOMETER	No Well Log Located	--
SP-2	3	2600025339	Active	760.02	2	40	33	39.23	74	14	28.32	629337	564027	10.18	10.36	12/21/2017	2	10	3-13	3-13	Flush Mount	.010 PVC	3	13	13	13	--	6/6/1991	6/4/1991	PIEZOMETER	No Well Log Located	--
SP-3	3	2600025340	Active	760.02	2	40	33	40.61	74	14	24.47	629478.15	564323.96	9.33	9.59	19/9/2014	2	10	3-13	3-13	Flush Mount	.010 PVC	3	13	13	13.01	--	6/5/1991	6/4/1991	RECOVERY	No Well Log Located	

BG-1

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

Mail to

Water Allocation
CN 028
Trenton, N.J. 08625

Permit No.

26-9305

PERMIT TO DRILL WELL 25

VALID ONLY AFTER APPROVAL BY THE D.E.P.

26.31.9.23

Owner AMERADA HESS
Address 1 HESS PLAZA
WOODBURY, N.J.
Name of Facility PORT READING REFINERY
Address STATE STREET
PORT READING, N.J.

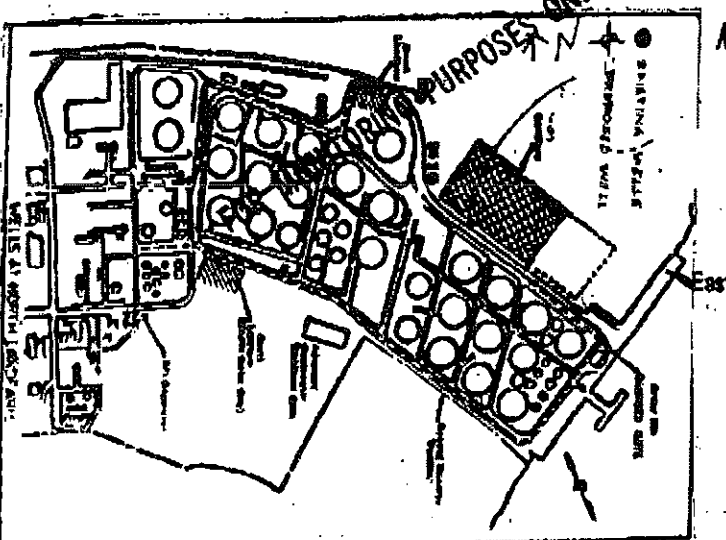
Driller JOSEPH TABASCO
Address 40 LIPPINCOTT ENGINEERING
501 BURLINGTON AVE.
DELANCO, N.J. 08025

Diameter of Well	4 inches	Proposed Depth of Well	25 to 30 Feet
Proposed Capacity of Pump	N/A GPM	Method of Drilling	(cable-foot, rotary, etc.) <u>ROTARY (AUGER)</u>
Use of Well (See Reverse)	<u>GROUND WATER MONITORING</u>		

Lot # — Block # — Municipality Port Reading County Middlesex

State Atlas Map No. 26

Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.



No sewer
or septic

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS.

- ☐ Pinelands - Well must be drilled over 100' deep or a clay layer at least 4' in thickness must be encountered.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Authorization by rule under N.J.A.C. 7:14A-1 et seq.
- ☐ Samples of cuttings required every _____ feet or change in material.
- ☐ The results of a volatile organic scan must be obtained prior to using the water and submitted to _____.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐ _____

This Space for Approval Stamp

WELL PERMIT
APPROVED

JUN 25 1986

DEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
WATER ALLOCATION

WELL SEALED

1/4/91

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

COPIES:

Water Allocation - White

Health Dept. - Yellow

Owner - Blue

Driller - White

WELPMT 068 1187

WELL SEALED

1/4/91

26.31.924

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 26-9305

APPLICATION NO. _____

COUNTY Middlesex

**FOR MONITORING
PURPOSES ONLY**

WELL RECORD

1. OWNER AMERADA HESS ADDRESS 1 HESS PLAZA, Woodbury, N.J.
Owner's Well No. MW-1, BG-1, DEEP WELL SURFACE ELEVATION 9.73 Feet
(Above mean sea level)
 2. LOCATION STATE STREET, Port Reading, N.J. (Woodbridge Twp.)
 3. DATE COMPLETED JUNE - 27, 1986 DRILLER MR. ED DORON
 4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 45' 3 1/2" Feet
 5. CASING: Type PVC Diameter 4 inches Length 25' 3 3/4" Feet
 6. SCREEN: Type PVC Size of Opening .020" Diameter 4 inches Length 20 Feet
- Range in Depth { Top _____ Feet
Bottom _____ Feet
- Geologic Formation BARITAN - MAGOTHY
- Tail Piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
 8. RECORD OF TEST: Date JUNE - 27, 1986 Yield 15 Gallons per minute
Static water level before pumping 6' 2" Feet below surface
Pumping level 6' 5" feet below surface after 2 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped SHALLOW WELL JET How measured VOLUMETRICALLY
Observed effect on nearby wells NONE
 9. PERMANENT PUMPING EQUIPMENT:
Type N/A Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
 10. USED FOR GROUND WATER MONITORING AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
 11. QUALITY OF WATER N/A Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____
LOG SEE ATTACHED BORING LOG Are samples available? YES Anna Cavaluski
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.) of AMERADA HESS.
 - SOURCE OF DATA DRILLER'S OBSERVATIONS
 - DATA OBTAINED BY MR. ED DORON Date JUNE 26, 1986

(NOTE: Use other side of this sheet for additional information such as log of material)

26.31.926
LIPPINCOTT ENGINEERING ASSOCIATES
501 BURLINGTON AVENUE DELANCO, N.J. 08075

26.31.924
26-9305

PROJECT NO. 3929.B1
DATE 6/26/86

SHEET 1 OF 2
SURFACE ELEV 9.73

PROJECT MONITORING WELL INSTALLATION

CLIENT AMERADA HESS

LOCATION PORT READING, NJ

LOG OF BORING NO. BG-1 Deep Well

JJT/nk

DEPTH	SAMPLE NUMBER	TYPE	SAMPLE DEPTH	NUMBER OF BLOWS PER 6"	CLASSIFICATION OF MATERIALS	MOISTURE CONTENT
					BASED ON SAMPLES RECOVERED PLUS OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	
0	S-1	A	0/	5-8-12-14	Reddish brown coarse SAND.	
			2			
	S-2	A	2/	17-19-17-18	Same.	
			4			
5	S-3	A	4/	1-1-1-8	Dark brown medium-coarse SAND.	
			6			
	S-4	A	6/	10-17-17-16	Same.	
			8			
	S-5	A	8/	8-3-3-2	PEAT.	
			10			
10						
15	S-6	A	14/	1-1-1-1	Grey SILT & PEAT.	
			16			
20	S-7	A	19/	2-2-2-3	Same.	
			21			
25	S-8	A	24/	3-3-3-6	Grey SILT.	
			26			
30	S-9	A	29/	6-12-15-23	Reddish brown medium-coarse SAND.	
			31			
35	S-10	A	34/	1-3-6-10	Same.	
			36			
	S-11	A	38/	1-3-8-9	Same.	
			40			
40						

R-106 Rev.

GROUND WATER DATA

DEPTH	HOUR	DATE
6'-2"		6/26/86

- * A. STANDARD PENETRATION TEST (ASTM-D 1586)
B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
C. CORE DRILLING

DRILLER E. DORON

HELPER

J. GRABITZ

EQUIPMENT

CM

801 BURLINGTON AVENUE

DELANCO, N.J. 08078

PROJECT NO. 3929.B1

DATE 6/26/86

SHEET 2 OF 2

SURFACE ELEV 9.73

PROJECT MONITORING WELL INSTALLATION

CLIENT AMERADA HESS

LOCATION PORT READING, NJ

LOG OF BORING NO. EG-1 Deep Well

JJT/ek

[illegible]

GROUND WATER DATA

DEPTH	HOUR	DATE
6'-2"		6/26/86

- A. STANDARD PENETRATION TEST (ASTM-D 1585)
- B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
- C. CORE DRILLING

DRILLER E. DORON HELPER J. GRABITZ EQUIPMENT CME-55

R-106 Rev. 2/77

26-31.926

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION 26-9305
 (One form must be completed for each well)

Name of Permittee: AMERADA HESS
 Name of Facility: PORT READING REFINERY
 Location: STATE STREET PORT READING, N.J.
 NJPDES Permit No: NJ

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
 This number must be permanently affixed to the well casing.

26-9305

Owner's Well Number (As shown on the application or plans):

B6-1 (DEEP WELL)

Well Completion Date:

JUNE 27, 1986

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

1.26

Total Depth of Well (one-tenth of a foot):

45.29

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

25.29

Screen Length (feet):

20

Screen or Slot Size:

.020 IN.

Screen Material:

PVC

Casing Material: (PVC, Steel or Other-Specify):

PVC

Casing Diameter (Inches):

4.0

Static Water Level From Top of Casing at The

Time of Certification (one-hundredth of a foot):

16.17

Yield (Gallons per Minute):

15

Length of time Well Pumped or Bailed:

2 Hours 0 Minutes

Lithologic Log:

ATTACH ON BACK**AUTHENTICATION:**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Moustafa A. Gouda
 Professional Engineer's Signature

Moustafa A. Gouda
 Professional Engineer's Name
 (Please type or print)

SEAL

20848
 Professional Engineer's License #

012101
26.31.926
26.9305

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee: AMERADA HESS
Name of Facility: PORT BEADING REFINERY
Location: STATE STREET PORT BEADING N.J.
NJDES Number: NJ

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section, 609-984-6831):
This number must be permanently affixed to the well casing.

26-9305--

Longitude (one-tenth of a second):
Latitude (one-tenth of a second):
Elevation of Top of Casing (cap off) (one-hundredth of a foot):
Owners Well Number (As shown on the application or plans):

West 74-14-31.85
North 40-33-43.32

10.99

B 6-1 (DEEP WELL)

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Vincent Schulte
PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Vincent Schulte
PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL

7071
PROFESSIONAL LAND SURVEYOR'S LICENSE #

The Department reserves the right in cases of violation of permit specified ground water limits or Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be surveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall be considered to require a major modification.

New Jersey Department of Environmental Protection
Division of Water Resources — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO

WELL PERMIT # 26-9305
of well sealed

Bureau of Water Allocation
CN 029
Trenton, NJ 08625

DATE WELL SEALED 1/04/91

26 31 923

PROPERTY OWNER Amerada Hess Coropration

ADDRESS 250 Cliff Road, Port Reading, N.J.

WELL LOCATION 250 Cliff Road, Port Reading, N.J. Middlesex

Street & No., Township, County

BG-1, L-3, BL-75674°15'W 40°34'N

Well No., Lot & Block No., Longitude & Latitude (N.J. Grid # may be substituted for longitude & latitude)

TYPE OF WELL ABANDONED. Monitoring

REASON FOR ABANDONMENT: Request of Client

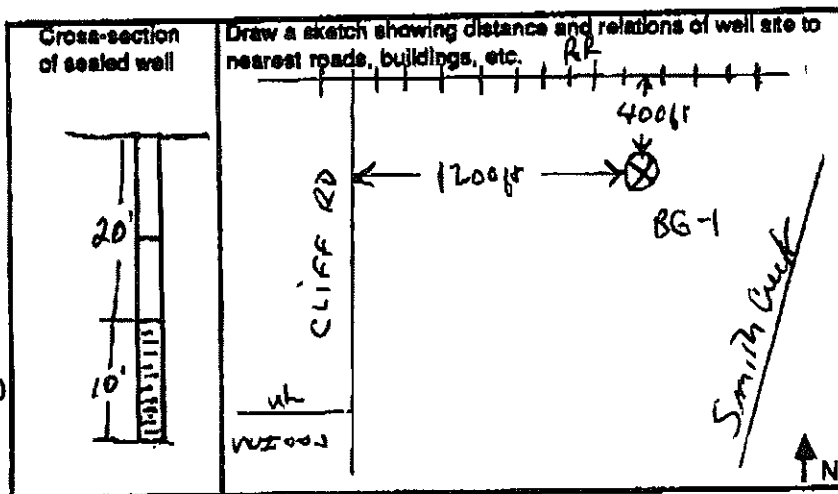
WAS A NEW WELL DRILLED? ☐ YES ☒ NO PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 30'
DIAMETER 4"
CASING LENGTH 20'
SCREEN LENGTH 10'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
94 Lbs. of Cement
5 Lbs. of Bentonite
0 Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: Consolidated
XX Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO CASING MATERIAL: PVC

WERE OTHER OBSTRUCTIONS REMOVED? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

Earl Hauge EDI 328 Stafford Forge Rd., West Creek, New Jersey 2/20/91

Name of Person Doing Sealing Work
(Print or Type)

Address

Earl Hauge
Signature of Person Doing Sealing Work

Mailing Date

1130

License #

BG-2

Mail to

Water Allocation

CN-029

Trenton, N.J. 08625

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

PERMIT TO DRILL WELL

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No. 26-8130-
26.31.68132

Owner AMERADA HESSDriller JOSEPH TABASCOAddress 1 HESS PLAZA

Address 90 LIPPINCOTT ENGINEERING
501 BURLINGTON AVE
DELANCO, NJ 08075

Name of Facility PORT READING REFINERYAddress STATE STPORT READING, NJ

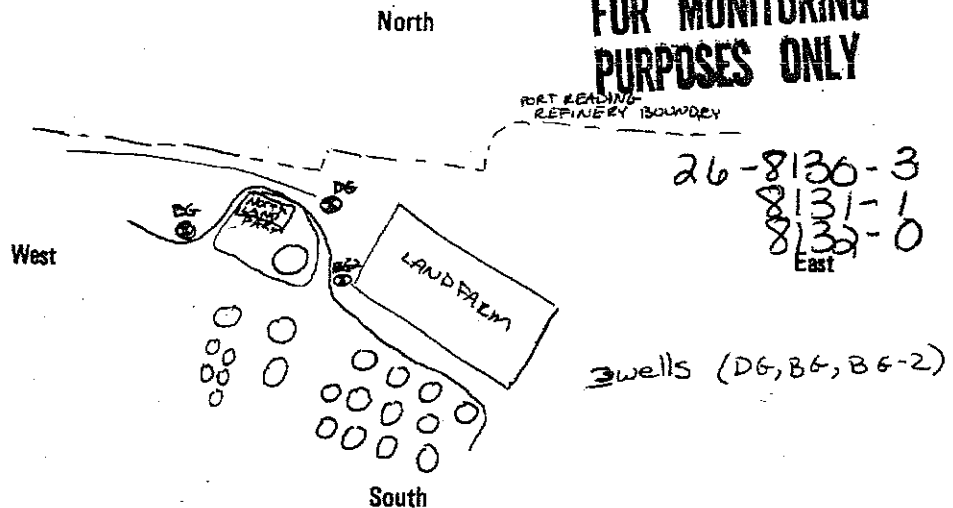
Diameter of Well <u>4</u> Inches	Proposed Depth of Well <u>25 to 30</u> Feet
Proposed Capacity of Pump <u>N/A</u> G.P.M.	Method of Drilling (cable-tool, rotary, etc.)
Use of Well (See Reverse) <u>GROUNDWATER MONITORING</u>	

LOCATION OF WELL

LEA Job # 3929.1

Lot#	Block#	Municipality	County
		<u>PORT READING</u>	<u>MIDDLESEX</u>

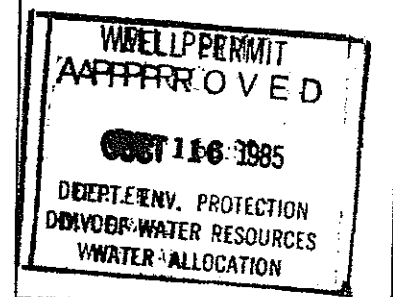
Draw sketch showing distance and relations of well site to
nearest public roads, streets, septic systems, etc.

State Atlas Map No. 26

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS:

- ☐ Permit issued in accordance with provisions of letter of transmittal dated _____.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Samples of cuttings required every _____ feet.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐

This Space for Approval Stamp



In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

WATER ALLOCATION COPY

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

26-31-819
WELL RECORD

PERMIT NO. #26-0132-0
APPLICATION NO. _____
COUNTY MIDDLESEX

1. OWNER AMERADA HESS ADDRESS FORT READING, NJ
Owner's Well No. BG-2 SURFACE ELEVATION 9.6 Feet
(Above mean sea level)
2. LOCATION NORTH LAND FARM
3. DATE COMPLETED 10-18-85 DRILLER BARRIE WOODINGTON
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 9.2 Feet
5. CASING: Type PVC Diameter 4 inches Length 4.2 Feet
6. SCREEN: Type PVC Size of Opening .020" Diameter 4 inches Length 5.0 Feet
- Range in Depth { Top _____ Feet
Bottom _____ Feet
- Geologic Formation RARITAN-MAGOTHY
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 11-14-85 Yield 0.5 Gallons per minute
Static water level before pumping 3.3 Feet below surface
Pumping level 9.0 feet below surface after 5 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped SHALLOW WELL SET How measured VOLUMETRICALLY
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT: NO
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR GROUND WATER MONITORING AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER N/A Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ OF.
12. LOG SEE ATTACHED Are samples available? YES
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA DRILLERS OBSERVATIONS
14. DATA OBTAINED BY JOR TABASCO Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

501 BURLINGTON AVENUE DELANCO, N.J. 08075

26-31-819
26-8132

PROJECT WELL INSTALLATION/NO. 1 LAND FARM CLIENT AMERADA HESS

LOCATION PORT READING REFINERY LOG OF BORING NO. BG-2

[illegible]

R-106 Rev. 2/77

DEPTH	HOUR	DATE
3'-0"	.	10/19/85

- * A. STANDARD PENETRATION TEST (ASTM-D 1586)
- B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
- C. CORE DRILLING

DRILLER J. SNYDER HELPER E. DORON



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Hess Former Port Reading Complex

List all AKAs:

Street Address: 750 Cliff Road

Municipality: Township of Woodbridge (Township, Borough or City)

County: Middlesex Zip Code: 07064

Program Interest (PI) Number(s): Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner

2. Well Location (Street Address)

3. Well Location (Municipal Block and Lot) Block# Lot #

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600008132

2. Site Well Number (As shown on application or plans): BG-2

3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:

Latitude: North 40°33'43.57" Longitude: West 74°14'30.60"

4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:

North 629776 East 563850

5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 6.96

Elevation Top of Outer casing: 7.18 Elevation of ground: 7.16 (PAVE)

Check one: ☒ NAVD 88 ☐ NVGD29 ☐ On Site Datum ☐ Other

6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).

BENCHMARK: NJTP PISCATAWAY CORPS ARP
ELEV.= 109.56' (NAVD 88 DATUM)

7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature:

Date 12/21/2017

Surveyor's Name: Steven D. Parent

License Number: 24GS03626900

Firm Name: DPK Consulting, LLC

Certificate of Authorization #: 24GA28042200

Mailing Address 220 Old New Brunswick Road Suite 201

City/Town: Piscataway State New Jersey Zip Code: 08854

Phone Number 732.764.0100 Ext.: Fax: 732.764.0990

BG-3

LEAF 922.C-9

DWR-133 (5/85)

Mail to

Water Allocation

CN 029

Trenton, N.J. 08625

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

PERMIT TO DRILL WELL 25

Permit No. 2611432

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD#: 26.319.26

Owner AMERADA HESSDriller ED DORON - LIPPINCOTT ENG. ASSOC.Address 1 HESS PLAZAAddress 301 BURLINGTON AVE.WOODBURY, N.J. 07095DELANCO, NJ. 08075Name of Facility PORT READING REFINERYAddress STATE ST.PORT READING, N.J.

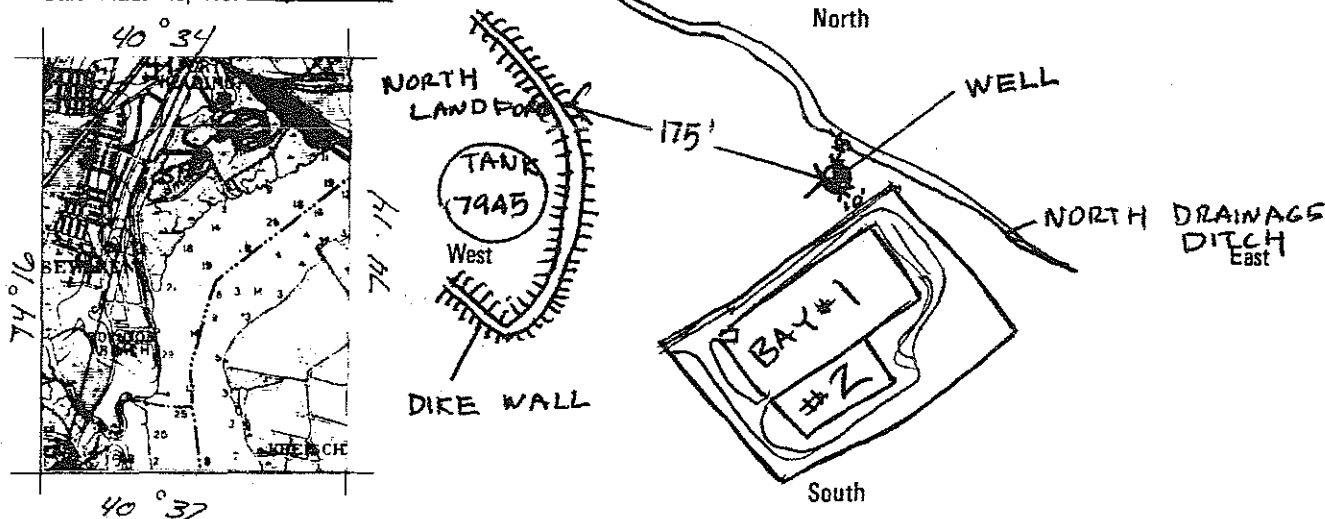
Diameter of Well	8"	Inches	Proposed Depth of Well	20	Feet
Proposed Capacity of Pump	N/A	GPM	Method of Drilling	ROTARY AUGER	
Use of Well (See Reverse)		RECOVERY			

LOCATION OF WELL

Lot #	Block #	Municipality	County
—	—	WOODBURY	MIDDLESEX

Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.

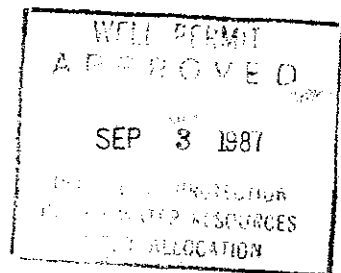
State Atlas Map No. 26



SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT to acceptance of and compliance with the following ADDITIONAL CONDITIONS.

- ☐ Pinelands - Well must be drilled over 100' deep or a clay layer at least 4' in thickness must be encountered.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Authorization by rule under N.J.A.C. 7:14A-1 et seq.
- ☐ Samples of cuttings required every _____ feet or change in material.
- ☐ The results of a volatile organic scan must be obtained prior to using the water and submitted to _____.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐ _____

This Space for Approval Stamp



In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

COPIES:

Water Allocation - White

Health Dept. - Yellow

Owner - Blue

Driller - White

863

26.31.926

264432

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

**FOR OBSERVATION
PURPOSES ONLY**

WELL RECORD

APPLICATION NO. _____
COUNTY Middlesex

1. OWNER AMERA DAI HESS ADDRESS 1 HESS PLAZA Wood Bridge, N.J.
Owner's Well No. BB-3 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Port Reading Refinery STATE ST.
3. DATE COMPLETED 9-16-87 DRILLER Edward Doron
4. DIAMETER: Top 4" inches Bottom 4" inches TOTAL DEPTH 10 Feet
5. CASING: Type PVC Diameter 4 inches Length 7 Feet
6. SCREEN: Type PVC Size of Opening 0.20 Diameter 4 inches Length 5 Feet
- Range in Depth { Top _____ Feet
Bottom _____ Feet
Geologic Formation Kirkwood
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 9-16-87 Yield 5 Gallons per minute
Static water level before pumping 3' 7" Feet below surface
Pumping level 9 1/2' feet below surface after 2 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped Jet Pump How measured VOLUMETRICALLY
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type N/A Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Ground water monitoring AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ OF.
12. LOG See Boring logs Are samples available? yes
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Driller observation & measurements
14. DATA OBTAINED BY Edward Doron Date 9-16-87

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

DRILLER E. Doran HELPER D. McFarlane EQUIPMENT 050/2



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: AMERADA HESS CORPORATION
List all AKAs: BUCKEYE PORT READING TERMINAL LLC
Street Address: 750 CLIFF ROAD
Municipality: WOODBRIDGE TOWNSHIP (PORT READING) (Township, Borough or City)
County: MIDDLESEX Zip Code: 07064
Program Interest (PI) Number(s): 006148 Case Tracking Number(s): VARIOUS

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner: AMERADA HESS CORPORATION
2. Well Location (Street Address): 750 CLIFF ROAD
3. Well Location (Municipal Block and Lot): Block #: 760.02 Lot #: 1

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600011432
2. Site Well Number (As shown on application or plans): BG-3
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:
Latitude: North: 40 ° 33 ' 41.088 " Longitude: West: 74 ° 14 ' 21.699 "
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
North: 629526.83 East: 564537.71
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 10.31
Elevation Top of Outer casing: 10.63 Elevation of ground: 7.70
Check one: ☒ NAVD 88 ☐ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)
NAVD 88
7. Significant observations and notes:
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, LLC

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Date: December 9, 2014

Professional Land Surveyor's Signature:

Surveyor's Name: James M. Stewart, PLS

License Number: 24GS02610800

Firm Name: Dennis W. Sklar, Inc.

Project #: 1600

Certificate of Authorization #: 24GA28150900

Mailing Address: 2837 Ogden Avenue

City/Town: Bensalem

State: PA

Zip Code: 19020

Phone Number: 215-268-7988

Ext: N/A

Fax: 215-268-7966

L1-1

4-1

Form DWR-133 (4/82)

Mail to
Water Allocation
CN-029
Trenton, N.J. 08625

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

PERMIT TO DRILL WELL

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No.

26-31.9

26-08065

26-08068

Owner AMERADA HESS

Driller JOSEPH TABASCO

Address 1 HESS PLAZA

Address 90 LIPPINCOTT ENG. ASSOC

WOODBURY, NJ

501 BURLINGTON AVE

DELANCO, NJ 08075

Name of Facility PORT READING REFINERY

Address STATE ST

PORT READING, NJ

Diameter of Well <u>4</u> Inches	Proposed Depth of Well <u>25 to 30</u> Feet
Proposed Capacity of Pump <u>N/A</u> G.P.M.	Method of Drilling (cable-tool, rotary, etc.) <u>ROTARY (H&ER)</u>
Use of Well (See Reverse) <u>GROUND WATER MONITORING</u>	

LOCATION OF WELL

Lot#	Block#	Municipality	County
		<u>PORT READING</u>	<u>MIDDLESEX</u>

Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.

State Atlas Map No. 26

40° 34'



74° 16'

North

FOR MONITORING
PURPOSES ONLY

SEE ATTACHED
DRAWING

West

4 wells, No. 1 LAND FARM

East

26-08065-6
26-08066-4
26-08067-2
26-08068-1

South

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS:

- ☐ Permit issued in accordance with provisions of letter of transmittal dated _____.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Samples of cuttings required every _____ feet.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10.1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐

This Space for Approval Stamp

WELL PERMIT
APPROVED

OCT 1 1985

DEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
WATER ALLOCATION

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

WATER ALLOCATION COPY

WELPMT 068 0678

Form DWR- 138
11/80

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. #26-8068-1

26-31-819

APPLICATION NO. _____

WELL RECORD

COUNTY MIDDLESEX

1. OWNER AMERADA HESS ADDRESS PORT READING NJ
Owner's Well No. IFBG1 SURFACE ELEVATION 12.8 Feet
(Above mean sea level)
2. LOCATION NORTH LAND FARM
3. DATE COMPLETED 10-18-85 DRILLER BARRY WOODINGTON
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 15 Feet
5. CASING: Type PVC Diameter 4 inches Length 5 Feet
6. SCREEN: Type PVC Size of Opening .020" Diameter 4 inches Length 10 Feet
Range in Depth { Top - Feet
Bottom - Feet
Geologic Formation RARITAN-MAGOTHY
Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY - Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 10-19-85 Yield 2.5 Gallons per minute
Static water level before pumping 6.9 Feet below surface
Pumping level 6.9 feet below surface after 2 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped SHALLOW WELLS JET How measured VOLUMETRICALLY
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT: NO
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR GROUND WATER MONITORING AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER NA Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG SEE ATTACHED Are samples available? YES
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA DRILLER'S OBSERVATIONS
14. DATA OBTAINED BY Joe Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

LIPPINCOTT ENGINEERING ASSOCIATES

501 BURLINGTON AVENUE DELANCO, N.J. 08075

PROJECT NO. 3929.A1

DATE 10/18/85

26-31-819
26-8068

SHEET 1 OF 7
SURFACE ELEV 12.8

PROJECT WELL INSTALLATION/NO. 1 LAND FARM

CLIENT AMERADA HESS

LOCATION PORT READING REFINERY

LOG OF BORING NO. LP-1 BG-1

Permit No. 26-8068

DEPTH	SAMPLE NUMBER	TYPE*	SAMPLE DEPTH	NUMBER OF BLOWS PER 5"	CLASSIFICATION OF MATERIALS	MOISTURE CONTENT			
					BASED ON SAMPLES RECOVERED PLUS OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES				
0	S-1	A	0/	11-13-15-17	Brown coarse-fine SAND, little gravel, little silt.				
			2						
5	S-2	A	4/	8-8-10-9	Same.				
			6						
10	S-3	A	9/	11-10-8-8	Same.				
			11						
15	S-4	A	14/	4-4-5-3	Same.				
			16						
	S-5	A	16/	1-2-2-3	Dark brown organic SILTY CLAY. Same.				
			18						
					EOB 18'-0"				

GROUND WATER DATA

DEPTH	HOUR	DATE
7'-2"	1 hr	10/18/85
	after	

- * A. STANDARD PENETRATION TEST (ASTM-D 1586)
B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
C. CORE DRILLING

DRILLER B. WOODINGTON

HELPER E. DORON

R-106 Rev.2/77



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Hess Former Port Reading Complex

List all AKAs:

Street Address: 750 Cliff Road

Municipality: Township of Woodbridge (Township, Borough or City)

County: Middlesex Zip Code: 07064

Program Interest (PI) Number(s): Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner

2. Well Location (Street Address)

3. Well Location (Municipal Block and Lot) Block# Lot #

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600080681

2. Site Well Number (As shown on application or plans): L1-1

3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:

Latitude: North 40°33'40.67" Longitude: West 74°14'29.29"

4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:

North 629483 East 563952

5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 9.91

Elevation Top of Outer casing: 10.15 Elevation of ground: 10.14 (PAVE)

Check one: ☒ NAVD 88 ☐ NVGD29 ☐ On Site Datum ☐ Other

6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).

BENCHMARK: NJTP PISCATAWAY CORPS ARP
ELEV.= 109.56' (NAVD 88 DATUM)

7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature:

Date 12/21/2017

Surveyor's Name: Steven D. Parent

License Number: 24GS03626900

Firm Name: DPK Consulting, LLC

Certificate of Authorization #: 24GA28042200

Mailing Address 220 Old New Brunswick Road Suite 201

City/Town: Piscataway State New Jersey Zip Code: 08854

Phone Number 732.764.0100 Ext.: Fax: 732.764.0990

L1-2

Mail to

Water Allocation
CN-029

Trenton, N.J. 08625

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

PERMIT TO DRILL WELL

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No. 26-08065

26-31.9

Owner AMERADA HESSDriller JOSEPH TABASCOAddress 1 HESS PLAZA
WOODBURY, NJAddress 96 LIPPINCOTT ENG. ASSOC.
501 BURLINGTON AVE
DELANCO, NJ 08075Name of Facility PORT READING REFINERYAddress STATE STPORT READING, NJ

Diameter of Well <u>4</u> Inches	Proposed Depth of Well <u>25 to 30</u> Feet
Proposed Capacity of Pump <u>N/A</u> G.P.M.	Method of Drilling (cable-tool, rotary, etc.) <u>ROTARY (AUGER)</u>
Use of Well (See Reverse) <u>GROUND WATER MONITORING</u>	

LOCATION OF WELL

Lot #	Block #	Municipality	County
		<u>PORT READING</u>	<u>MIDDLESEX</u>

Draw sketch showing distance and relations of well site to
nearest public roads, streets, septic systems, etc.State Atlas Map No. 26

40° 34'



North

SEE ATTACHED
DRAWING

West

4 wells, No. 1 LAND FARM

East

26-08065-6
26-08066-4
26-08067-2
26-08068-1

South

FOR MONITORING
PURPOSES ONLY

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS:

- ☐ Permit issued in accordance with provisions of letter of transmittal dated _____.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Samples of cuttings required every _____ feet.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐ _____

This Space for Approval Stamp

WELL PERMIT
APPROVED
OCT 1 1985
DEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
WATER ALLOCATION

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

WATER ALLOCATION COPY

WELPMT 068 0678

Form DWR-138
11/80

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. #26-8065-6

26-31-819
WELL RECORD

APPLICATION NO. _____
COUNTY MIDDLESEX

1. OWNER AMERADA HESS ADDRESS PORT READING, NJ
Owner's Well No. D41 (LF-1) SURFACE ELEVATION 10.0 Feet
(Above mean sea level)
2. LOCATION NORTH LAND FILL
3. DATE COMPLETED 10-18-85 DRILLER JOHN SNYDER
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 14.0 Feet
5. CASING: Type PVC Diameter 4 inches Length 4.0 Feet
6. SCREEN: Type PVC Size of Opening 0.20" Diameter 4 inches Length 10 Feet
- Range in Depth { Top _____ Feet
Bottom _____ Feet
- Geologic Formation RABITAN - MAGOTHY
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 11-11-85 Yield 3.3 Gallons per minute
Static water level before pumping 5'9" Feet below surface
Pumping level 14.0 feet below surface after 2 1/2 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped SHALLOW WELL JET How measured VOLUMETRICALLY
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT: N/A
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR GROUND WATER MONITORING AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER N/A Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ OF.
12. LOG SEE ATTACHED Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA DRILLER'S OBSERVATIONS
14. DATA OBTAINED BY Joe Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

412

LIPPINCOTT ENGINEERING ASSOCIATES
501 BURLINGTON AVENUE DELANCO, N.J. 08075

PROJECT NO. 3929.A1
DATE 10/16/85

SHEET 2 OF 7
SURFACE ELEV 10.0

PROJECT WELL INSTALLATION/NO. 1 LAND FARM CLIENT AMERADA HESS
LOCATION PORT READING REPINERY LOG OF BORING NO. LP-1 DG-1 41-2

Permit No. 26-8065

DEPTH	SAMPLE NUMBER	TYPE *	SAMPLE DEPTH	NUMBER OF BLOWS PER 6"	CLASSIFICATION OF MATERIALS	MOISTURE CONTENT			
					BASED ON SAMPLES RECOVERED PLUS OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES				
0	S-1	A	0/	6-12-12-14	Brown coarse-fine SAND, little gravel, little silt.				
			2						
5	S-2	A	4/	4-7-10-11	Brown coarse-fine GRAVEL & coarse-fine SHALE, trace silt.				
			6						
10	S-3	A	9/	7-8-6-3	Light brown, same.				
			11						
	S-4	A	13/	2-2-1-1	Dark brown organic SILTY CLAY.				
15			15						
					EOB 15'-0"				

GROUND WATER DATA

R-106 Rev.2

DEPTH	HOUR	DATE
7'-3"		10/16/85
6'-11"		10/18/85
6'-2"		10/19/85

- * A. STANDARD PENETRATION TEST (ASTM-D 1586)
- B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
- C. CORE DRILLING

DRILLER B. WOODINGTON HELPER T. LIPPINCOTT



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: AMERADA HESS CORPORATION
List all AKAs: BUCKEYE PORT READING TERMINAL LLC
Street Address: 750 CLIFF ROAD
Municipality: WOODBIDGE TOWNSHIP (PORT READING) (Township, Borough or City)
County: MIDDLESEX Zip Code: 07064
Program Interest (PI) Number(s): 006148 Case Tracking Number(s): VARIOUS

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner: AMERADA HESS CORPORATION
2. Well Location (Street Address): 750 CLIFF ROAD
3. Well Location (Municipal Block and Lot): Block #: 760.02 Lot #: 1

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600080656
2. Site Well Number (As shown on application or plans): L1-2
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:
Latitude: North: 40 ° 33 ' 44.262 " Longitude: West: 74 ° 14 ' 27.377 "
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
North: 629846.79 East: 564098.56
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 9.05
Elevation Top of Outer casing: 9.80 Elevation of ground: 7.63
Check one: ☒ NAVD 88 ☐ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)
NAVD 88
7. Significant observations and notes:
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, LLC

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Professional Land Surveyor's Signature: [Signature]
Surveyor's Name: James M. Stewart, PLS

Firm Name: Dennis W. Sklar, Inc.

Mailing Address: 2837 Ogden Avenue

City/Town: Bensalem

Phone Number: 215-268-7988

Project #: 1600

Certificate of Authorization #: 24GA28150900

State: PA

Zip Code: 19020

Ext: N/A

Fax: 215-268-7966

SEAL

Date: December 9, 2014

License Number: 24GS02610800

L1-3

Mail to

Water Allocation
CN-029

Trenton, N.J. 08625

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

PERMIT TO DRILL WELL

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No. 26-08065
26-08066

26.31.9

Owner AMERADA HESSDriller JOSEPH TABASCOAddress 1 HESS PLAZAAddress 40 LIPPINCOTT ENG. ASSOC.
501 BURLINGTON AVE
DELANCO, NJ 08075Name of Facility PORT READING REFINERYAddress STATE STPORT READING, NJ

Diameter of Well <u>4</u> Inches	Proposed Depth of Well <u>25 to 30</u> Feet
Proposed Capacity of Pump <u>N/A</u> G.P.M.	Method of Drilling (cable-tool, rotary, etc.) <u>ROTARY (AUGER)</u>
Use of Well (See Reverse) <u>GROUND WATER MONITORING</u>	

LOCATION OF WELL

Lot#	Block#	Municipality	County
		<u>PORT READING</u>	<u>MIDDLESEX</u>

State Atlas Map No. 26Draw sketch showing distance and relations of well site to
nearest public roads, streets, septic systems, etc.

North

FOR MONITORING
PURPOSES ONLYSEE ATTACHED
DRAWING

West

4 wells, No. 1 LAND FARM

East

26-08065-6
26-08066-4
26-08067-2
26-08068-1

South

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS:

- ☐ Permit issued in accordance with provisions of letter of transmittal dated _____.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Samples of cuttings required every _____ feet.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐

This Space for Approval Stamp

WELL PERMIT
APPROVED

OCT 1 1985

DEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
WATER ALLOCATION

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

WATER ALLOCATION COPY

WELPMT 068 0678

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCESPERMIT NO. 26-8066-426-31-819

APPLICATION NO. _____

WELL RECORDCOUNTY MIDDLESEX

1. OWNER AMERADA HESS ADDRESS PORT READING, NJ
Owner's Well No. DG-2 SURFACE ELEVATION 10.3 Feet
(Above mean sea level)
2. LOCATION NORTH LAND FILL
3. DATE COMPLETED 10-19-85 DRILLER BARRIE WOODINGTON
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 9.4 Feet
5. CASING: Type PVC Diameter 4 inches Length 9.4 Feet
6. SCREEN: Type PVC Size of Opening 020" Diameter 4 inches Length 5.0 Feet
- Range in Depth { Top _____ Feet
Bottom _____ Feet Geologic Formation RARITAN-MAGDOHY
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY — Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 11-11-85 Yield 1.2 Gallons per minute
Static water level before pumping 6' 9" Feet below surface
Pumping level 9.4 feet below surface after 2 1/2 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped SHALLOW WELL TEST How measured VOLUMETRICALLY
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT: NO
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR GROUND WATER MONITORING AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER N/A Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG SEE ATTACHED Are samples available? YES
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA DRILLER'S OBSERVATIONS
14. DATA OBTAINED BY Joe Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

11-3

LIPPINCOTT ENGINEERING ASSOCIATES

501 BURLINGTON AVENUE DELANCO, N.J. 08075

PROJECT NO. 3929.A1
DATE 10/18/85

26-31-819

SHEET 3 OF 7
SURFACE ELEV 10.3

PROJECT WELL INSTALLATION/NO. 1 LAND FARM CLIENT AMERADA HESS

LOCATION PORT READING REFINERY LOG OF BORING NO. LP-1 DG-2

Permit No. 26-8066

DEPTH	SAMPLE NUMBER	TYPE*	SAMPLE DEPTH	NUMBER OF BLOWS PER 6"	CLASSIFICATION OF MATERIALS	MOISTURE CONTENT			
					BASED ON SAMPLES RECOVERED PLUS OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES				
0	S-1	A	0/	2-3-5-5	Brown coarse-fine SAND, some silt, little gravel.				
			2						
5	S-2	A	4/	3-7-10-12	Same.				
			6						
10	S-3	A	9/	1-1-1-4	Dark brown organic SILTY CLAY, little peat.				
			11						
					ROB 11'-0"				

GROUND WATER DATA

R-106 Rev. 2/77

DEPTH	HOUR	DATE
4'-6"		10/18/85
7'2"		10/19/85

- * A. STANDARD PENETRATION TEST (ASTM-D 1586)
- B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
- C. CORE DRILLING

DRILLER B. WOODINGTON HELPER E. DORON



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: AMERADA HESS CORPORATION
List all AKAs: BUCKEYE PORT READING TERMINAL LLC
Street Address: 750 CLIFF ROAD
Municipality: WOODBRIDGE TOWNSHIP (PORT READING) (Township, Borough or City)
County: MIDDLESEX Zip Code: 07064
Program Interest (PI) Number(s): 006148 Case Tracking Number(s): VARIOUS

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner: AMERADA HESS CORPORATION
2. Well Location (Street Address): 750 CLIFF ROAD
3. Well Location (Municipal Block and Lot): Block #: 760.02 Lot #: 1

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600080664
2. Site Well Number (As shown on application or plans): L1-3
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:
Latitude: North: 40 ° 33 ' 44.093 " Longitude: West: 74 ° 14 ' 24.406 "
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
North: 629830.29 East: 564327.89
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 9.33
Elevation Top of Outer casing: 9.79 Elevation of ground: 8.31
Check one: ☒ NAVD 88 ☐ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)
NAVD 88
7. Significant observations and notes:
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, LLC

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Professional Land Surveyor's Signature: [Signature]

Surveyor's Name: James M. Stewart, PLS

Firm Name: Dennis W. Sklar, Inc.

Mailing Address: 2837 Ogden Avenue

City/Town: Bensalem

Phone Number: 215-268-7988

SEAL

Date: December 9, 2014

License Number: 24GS02610800

Certificate of Authorization #: 24GA28150900

State: PA

Zip Code: 19020

Ext: N/A

Fax: 215-268-7966

L1-4

LI-4

LI-4 8067

Form DWR-133 (4/82)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

Mail to
Water Allocation
CN-029
Trenton, N.J. 08625

26-08065
to
Permit No. 26-08068
26.31.9

PERMIT TO DRILL WELL

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Owner AMERADA HESS
Address 1 HESS PLAZA
WOODBURY, NJ
Name of Facility PORT READING REFINERY
Address STATE ST
PORT READING, NJ

Driller JOSEPH TABASKO
Address 40 LIPPINCOTT ENG. ASSOC.
501 BURLINGTON AVE
DELANCO, NJ 08075

Diameter of Well <u>4</u> Inches	Proposed Depth of Well <u>25 to 30</u> Feet
Proposed Capacity of Pump <u>N/A</u> G.P.M.	Method of Drilling (cable-tool, rotary, etc.) <u>ROTARY (AUGER)</u>
Use of Well (See Reverse) <u>GROUND WATER MONITORING</u>	

LOCATION OF WELL

Lot#	Block#	Municipality	County
		<u>PORT READING</u>	<u>MIDDLESEX</u>

Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.

State Atlas Map No. 26



North

SEE ATTACHED
DRAWING

West

4 wells, No. 1 LAND FARM

East

26-08065-6
26-08066-4
26-08067-2
26-08068-1

South

FOR MONITORING
PURPOSES ONLY

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS:

- ☐ Permit issued in accordance with provisions of letter of transmittal dated _____.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Samples of cuttings required every _____ feet.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10.1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐ _____

This Space for Approval Stamp

WELL PERMIT
APPROVED
OCT 1 1985
DEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
WATER ALLOCATION

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

WATER ALLOCATION COPY

WELPMT 068 0678

on DWR-138
1/80

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 26-8067-2

26-31-819

APPLICATION NO. _____

WELL RECORD

COUNTY MIDDLESEX

1. OWNER AMERADA HESS ADDRESS FORT READING N.J.
Owner's Well No. DG 3 SURFACE ELEVATION 11.1 Feet
(Above mean sea level)
2. LOCATION NORTH LAND FILL
3. DATE COMPLETED 10-18-85 DRILLER JOHN SNYDER
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 9-0 Feet
5. CASING: Type PVC Diameter 4 inches Length 4-0 Feet
6. SCREEN: Type PVC Size of Opening .020" Diameter 4 inches Length 5-0 Feet
- Range in Depth { Top _____ Feet
Bottom _____ Feet
- Geologic Formation PARITON-MAGOTHY
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY — Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 11-11-85 Yield 1-5 Gallons per minute
Static water level before pumping 7'8" Feet below surface
Pumping level 9-0' feet below surface after 3 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped SHALLOW WELL SET How measured VOLUMETRICALLY
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT: NO
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR GROUND WATER MONITORING AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER N/A Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG SEE ATTACHED Are samples available? YES
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA DRILLER'S OBSERVATIONS
14. DATA OBTAINED BY Joe Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

LIPPINCOTT ENGINEERING ASSOCIATES

501 BURLINGTON AVENUE DELANCO, N.J. 08075

PROJECT NO. 3929.A1
DATE 10/17/85

SHEET 4 OF 7
SURFACE ELEV 11.1

PROJECT WELL INSTALLATION/NO. 1 LAND FARM

CLIENT AMERADA HESS

LOCATION PORT READING REFINERY

LOG OF BORING NO. LF-1 DG-3 61-4

Permit No. 26-8067

GROUND WATER DATA

R-106 Rev. 2,

EPTH	HOUR	DATE
7-6"		10/17/85

- A. STANDARD PENETRATION TEST (ASTM-D 1586)
- B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
- C. CORE DRILLING

DRILLER J. SNYDER

HELPER E. DORON



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: AMERADA HESS CORPORATION
List all AKAs: BUCKEYE PORT READING TERMINAL LLC
Street Address: 750 CLIFF ROAD
Municipality: WOODBIDGE TOWNSHIP (PORT READING) (Township, Borough or City)
County: MIDDLESEX Zip Code: 07064
Program Interest (PI) Number(s): 006148 Case Tracking Number(s): VARIOUS

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner: AMERADA HESS CORPORATION
2. Well Location (Street Address): 750 CLIFF ROAD
3. Well Location (Municipal Block and Lot): Block #: 760.02 Lot #: 1

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600080672
2. Site Well Number (As shown on application or plans): L1-4
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:
Latitude: North: 40 ° 33 ' 43.039 " Longitude: West: 74 ° 14 ' 23.707 "
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
North: 629723.85 East: 564382.18
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 10.85
Elevation Top of Outer casing: 11.06 Elevation of ground: 9.07
Check one: ☒ NAVD 88 ☐ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)
NAVD 88
7. Significant observations and notes:
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, LLC

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Professional Land Surveyor's Signature: [Signature] Date: December 9, 2014
Surveyor's Name: James M. Stewart, PLS License Number: 24GS02610800
Firm Name: Dennis W. Sklar, Inc. Project #: 1600 Certificate of Authorization #: 24GA28150900
Mailing Address: 2837 Ogden Avenue
City/Town: Bensalem State: PA Zip Code: 19020
Phone Number: 215-268-7988 Ext: N/A Fax: 215-268-7966

SEAL

L1-6

LEA#3922.C-9

DWR-133 (5/85)

Mail to

Water Allocation

CN 029

Trenton, N.J. 08625

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

PERMIT TO DRILL WELL ²⁵Permit No. 2611434

8

VALID ONLY AFTER APPROVAL BY THE D.E.P.

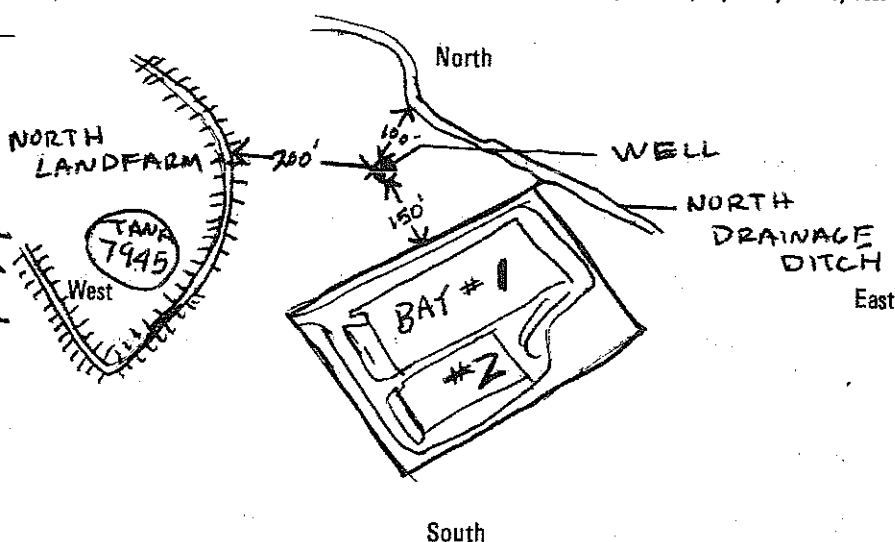
COORD#: 26-31926Owner AMERADA HESSDriller ED DORON - LIPPINCOTT ENG. ASSOC.Address 1 HESS PLAZAAddress 501 BURLINGTON AVE.WOODBURY, N.J. 07095DELANCO, N.J. 08015Name of Facility PORT READING REFINERYAddress STATE ST.PORT READING, N.J.

Diameter of Well	4" Inches	Proposed Depth of Well	30' Feet
Proposed Capacity of Pump	N/A GPM	Method of Drilling	Rotary
Use of Well (See Reverse)	GROUNDWATER MONITORING		

LOCATION OF WELL

Lot #	Block #	Municipality	County
—	—	WOODBIDGE TWP	MIDDLESEX

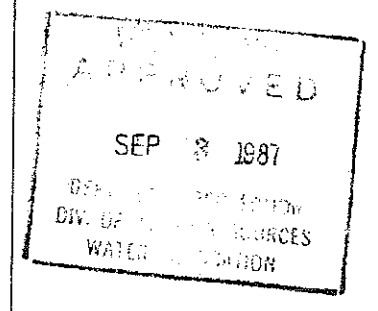
Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.

State Atlas Map No. 26

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS.

- ☐ Pinelands - Well must be drilled over 100' deep or a clay layer at least 4' in thickness must be encountered.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Authorization by rule under N.J.A.C. 7:14A-1 et seq.
- ☐ Samples of cuttings required every _____ feet or change in material.
- ☐ The results of a volatile organic scan must be obtained prior to using the water and submitted to _____.
- ☐ Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building.
- ☐ Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐ _____

This Space for Approval Stamp



In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____

Signature of Owner _____

COPIES:

Water Allocation - White

Health Dept. - Yellow

Owner - Blue

Driller - White

11-6

26-31-926

Form DWR-138
11/80

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 2611434
APPLICATION NO. _____
COUNTY Middlesex

**FOR OBSERVATION
PURPOSES ONLY**

WELL RECORD

1. OWNER AMERADA HESS ADDRESS 1 HESS PLAZA Woodbridge NJ
Owner's Well No. L1-6 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION PORT READING REFINERY STATE ST.
3. DATE COMPLETED 9-15-87 DRILLER Edward VORON
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 14' Feet
5. CASING: Type PVC Diameter 4" inches Length 6' Feet
6. SCREEN: Type PVC Size of Opening 0.20 Diameter 4" inches Length 10' Feet
Range in Depth { Top _____ Feet
Bottom _____ Feet
Geologic Formation KIRKWOOD
Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 9-16-87 Yield 1 Gallons per minute
Static water level before pumping 3' 9" Feet below surface
Pumping level 13' feet below surface after _____ hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped JET PUMP How measured VOLUMETRICALLY
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type N/A Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR GROUNDWATER MONITORING AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG SEE ATTACHED BORING LOGS Are samples available? YES
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA DRILLER OBSERVATION & MEASUREMENT
14. DATA OBTAINED BY Edward VORON Date 9-16-87

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

DRILLER Edo Ron HELPER D. McFadden EQUIPMENT D50/2

SP-1

DWR-133M (4/90) SERIAL # 19960

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

2625 338
2625 339
2625 340

Mail to
Water Allocation
CN 029
Trenton, N.J. 08625

MONITORING WELL PERMIT

Permit No. 25

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD # 26.31.697

Owner Amerada Hess (Port Reading Corp)
Address Hess Plaza
Woodbridge, NJ 07095
Name of Facility Port Reading Refinery
Address 750 Cliff Road
Port Reading, NJ 07064

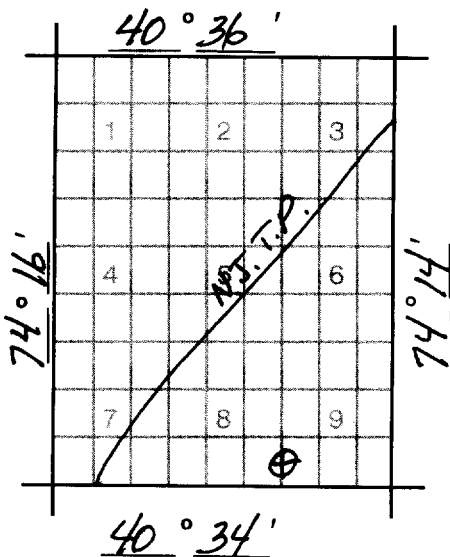
Driller Environmental Drilling Inc.
Address 328 Stafford Forge Rd.,
West Creek, NJ 08092

Diameter of Well(s)	2	Inches	Proposed Depth of Well(s)	12	Feet
# of Wells Applied for (max. 10)	3		Will pumping equipment be installed? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
Type of Well (see reverse)	Piezometer		If Yes, give pump capacity	NA	GPM

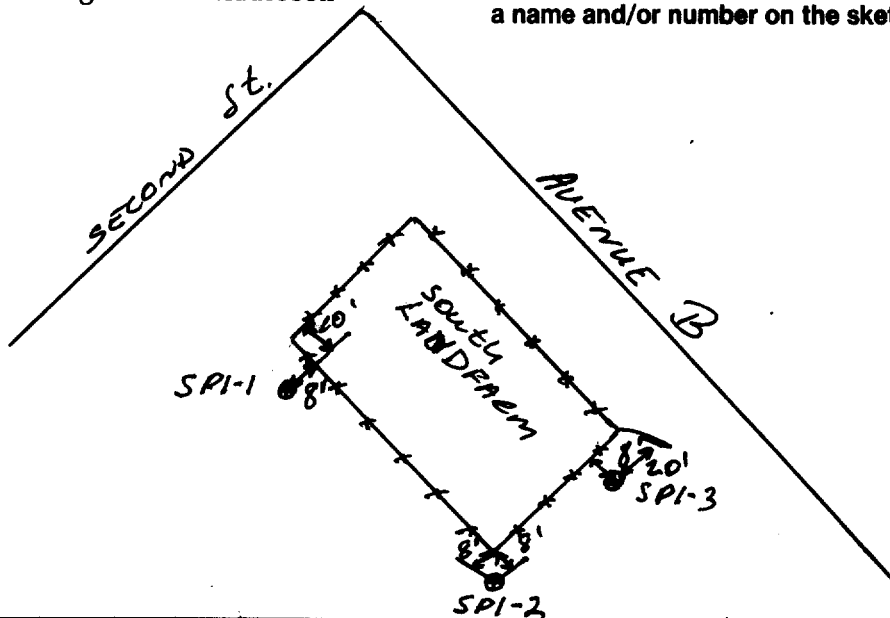
LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
1	760-B	Woodbridge	Middlesex

State Atlas Map No. 26



Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Fund Case
- ☐ ECRA Case
- ☐ CERCLA (Superfund) Site
- ☒ RCRA Site
- ☐ Underground Storage Tank
- ☐ NJPDES Municipal Discharge Permit
- ☐ NJPDES Industrial Discharge Permit
- ☐ Div. Hazardous Waste Mgmt. Enforcement Case
- ☐ Div. Water Resources Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well
- ☒ Other (explain) Bureau of Groundwater Pollution Abatement Directors

Case I.D. Number _____

This Space for Approval Stamp
WELL PERMIT
Dept. of Environmental Protection
Water Resources/Water Allocation
JUN 5 1991

FOR D.E.P. USE ☐ Issuance of this permit is subject to the conditions attached. (see next page) ☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.
☐ For monitoring purposes only

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

NJ-1036
Date 6-4-91

Signature of Driller E. Hauge License # 1130
Signature of Owner Paul McDonald (908 750-6000)
Health Dept. — Yellow Owner — Blue Driller — White

COPIES: Water Allocation — White and Pink

WELPMT 070 1156



MONITORING WELL RECORD

Well Permit No. 26 - 25338Atlas Sheet Coordinates 26 : 31 : 697 ☐OWNER IDENTIFICATION - Owner AMERADA HESS (PORT READING)Address HESS PLAZACity WOODBURGEState NJ

Zip Code _____

WELL LOCATION - If not the same as owner please give address.

Owner's Well No. SPS-8 (SPS-1)County _____ Municipality WOODBURGE TWPLot No. 1Block No. 760-B

Address _____

TYPE OF WELL (as per Well Permit Categories) PIEZOMETERDate well completed 6 / 06 / 91Regulatory Program Requiring Well BCRA

Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Amerada HessTele. # 908 750-6000

WELL CONSTRUCTION

Total depth drilled 15 ft.Well finished to 15 ft.

Borehole diameter:

Top 8 in.Bottom 8 in.Well was finished: ☒ above grade
☐ flush mountedIf finished above grade, casing
height (stick up) above land
surface 2 ft.

Was steel protective casing installed?

☐ Yes ☒ NoStatic water level after drilling 2 1/2 ft.Water level was measured using MScopeWell was developed for 1 hours at 2+ gpmMethod of development Submersible PumpWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity NA gpmPump type: NADrilling Method Stem AugerDrilling Fluid NA Type of Rig Mobile B-57Name of Driller Earl HaugeHealth and Safety Plan submitted? ☐ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1130Name of Drilling Company ENVIRONMENTAL DRILLING, INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	+2	5'	2"	PVC
Outer Casing (Not Protective Casing)	NA	NA	NA	
Screen (Note slot size)	5'	15'	2"	PVC Slot .010
Tail Piece	NA	NA	NA	
Gravel Pack	3'	15'	8"	# 1 Gravel
Annular Seal/Grout	1'	3'	8"	Cement
Method of Grouting				

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0'-15' dark silt and sand

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Date 7/12/91



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Hess Former Port Reading Complex

List all AKAs: _____

Street Address: 750 Cliff Road

Municipality: Township of Woodbridge (Township, Borough or City)

County: Middlesex Zip Code: 07064

Program Interest (PI) Number(s): _____ Case Tracking Number(s): _____

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner _____

2. Well Location (Street Address) _____

3. Well Location (Municipal Block and Lot) Block# _____ Lot # _____

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600025338

2. Site Well Number (As shown on application or plans): SP-1

3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:

Latitude: North 40°33'42.17"

Longitude: West 74°14'30.29"

4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:

North 629634

East 563875

5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 8.95

Elevation Top of Outer casing: 9.19

Elevation of ground: 9.17 (PAVE)

Check one: ☒ NAVD 88 ☐ NVGD29 ☐ On Site Datum ☐ Other

6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).

BENCHMARK: NJTP PISCATAWAY CORPS ARP
ELEV. = 109.56' (NAVD 88 DATUM)

7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature: _____

Date 12/21/2017

Surveyor's Name: Steven D. Parent

License Number: 24GS03626900

Firm Name: DPK Consulting, LLC

Certificate of Authorization #: 24GA28042200

Mailing Address 220 Old New Brunswick Road Suite 201

City/Town: Piscataway

State New Jersey

Zip Code: 08854

Phone Number 732.764.0100

Ext.: _____

Fax: 732.764.0990

SP-2

DWR-133M (4/90) SERIAL # 19960

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

2625 338
2625 339
2625 340

Mail to
Water Allocation
CN 029
Trenton, N.J. 08625

Permit No. 25

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD # 26.31.697

Owner Amerada Hess (Port Reading Corp)
Address Hess Plaza
Woodbridge, NJ 07095
Name of Facility Port Reading Refinery
Address 750 Cliff Road
Port Reading, NJ 07064

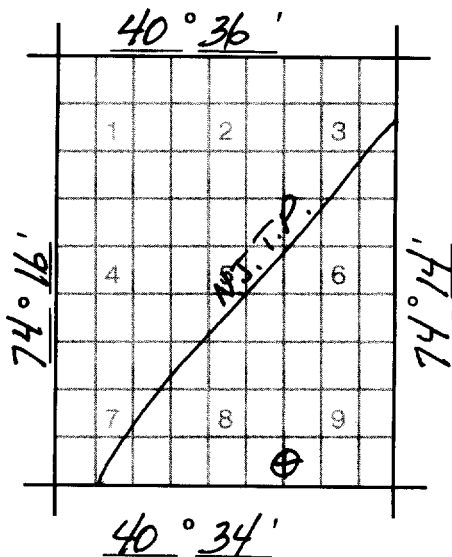
Driller Environmental Drilling Inc.
Address 328 Stafford Forge Rd.,
West Creek, NJ 08092

Diameter of Well(s)	2	Inches	Proposed Depth of Well(s)	12	Feet
# of Wells Applied for (max. 10)	3		Will pumping equipment be installed? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
Type of Well (see reverse)	Piezometer		If Yes, give pump capacity	NA	GPM

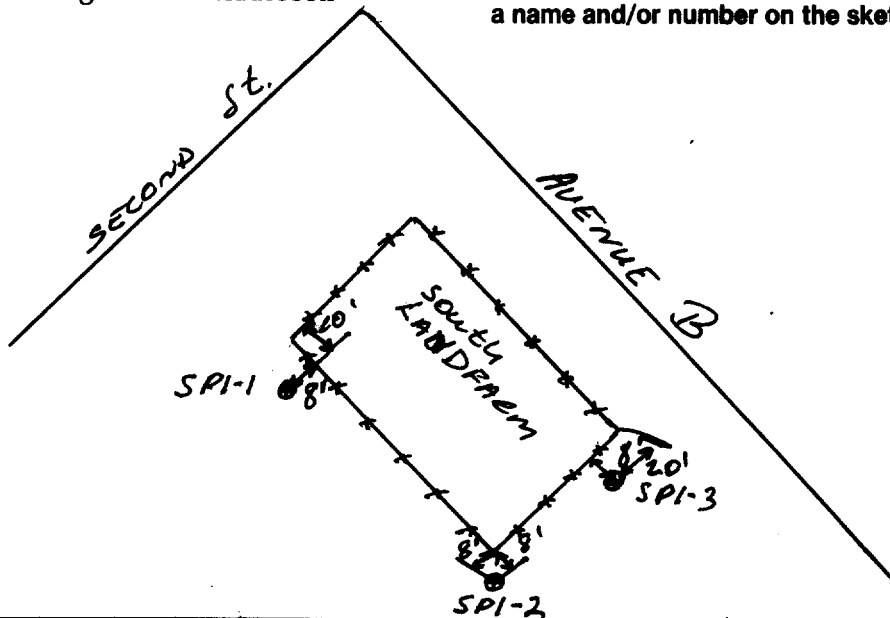
LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
1	760-B	Woodbridge	Middlesex

State Atlas Map No. 26



Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Fund Case
- ☐ ECRA Case
- ☐ CERCLA (Superfund) Site
- ☒ RCRA Site
- ☐ Underground Storage Tank
- ☐ NJPDES Municipal Discharge Permit
- ☐ NJPDES Industrial Discharge Permit
- ☐ Div. Hazardous Waste Mgmt. Enforcement Case
- ☐ Div. Water Resources Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well
- ☒ Other (explain) Bureau of Groundwater Pollution Abatement Directors

Case I.D. Number _____

This Space for Approval Stamp
WELL PERMIT
Dept. of Environmental Protection
Water Resources/Water Allocation
JUN 5 1991

FOR D.E.P. USE ☐ Issuance of this permit is subject to the conditions attached. (see next page) ☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.
☐ For monitoring purposes only

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

NJ-1036

Date 6-4-91

Signature of Driller E. Hauge License # 1130

Signature of Owner Paul McDonald (908 750-6000)

COPIES: Water Allocation — White and Pink

Health Dept. — Yellow

Owner — Blue

Driller — White

WELPMT 070 1156



MONITORING WELL RECORD

Well Permit No. 26 - 25339
Atlas Sheet Coordinates 26 : 31 : 697

OWNER IDENTIFICATION - Owner AMERADA HESS (PORT READING)
Address HESS PLAZA
City WOODBURGE State NJ Zip Code 07075

WELL LOCATION - If not the same as owner please give address. Owner's Well No. SPS-9 (SPS-2)
County Middlesex Municipality WOODBURGE TWP Lot No. 1 Block No. 760-B
Address 750 Cliff Rd., Port Reading, NJ

TYPE OF WELL (as per Well Permit Categories) Piezometer Date well completed 6 / 06 / 91
Regulatory Program Requiring Well RCRA Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Amerada Hess Tele. # 908 750-6000

WELL CONSTRUCTION

Total depth drilled 15 ft.

Well finished to 15 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface 2 ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 2 1/2 ft.

Water level was measured using M Scope

Well was developed for 1 hours at 2+ gpm

Method of development Submersible Pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: _____

Drilling Method Stem Auger

Drilling Fluid NA Type of Rig Mobile B-57

Name of Driller Earl Hauge

Health and Safety Plan submitted? ☐ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1130

Name of Drilling Company ENVIRONMENTAL DRILLING, INC.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

E. Hauge

Date 7/12/91

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	+2	5'	2"	PVC
Outer Casing (Not Protective Casing)	NA	NA	NA	
Screen (Note slot size)	5'	15'	2"	PVC Slot .010
Tail Piece	NA	NA	NA	
Gravel Pack	3'	15'	8"	# 1 Gravel
Annular Seal/Grout	0'	3'	8"	Cement
Method of Grouting				

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0'-15' dark silt and sand

12' 8" 750



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Hess Former Port Reading Complex

List all AKAs:

Street Address: 750 Cliff Road

Municipality: Township of Woodbridge (Township, Borough or City)

County: Middlesex Zip Code: 07064

Program Interest (PI) Number(s): Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner

2. Well Location (Street Address)

3. Well Location (Municipal Block and Lot) Block# Lot #

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600025339

2. Site Well Number (As shown on application or plans): SP-2

3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:

Latitude: North 40°33'39.23" Longitude: West 74°14'28.32"

4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:

North 629337 East 564027

5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 10.18

Elevation Top of Outer casing: 10.37 Elevation of ground: 10.36 (PAVE)

Check one: ☒ NAVD 88 ☐ NVGD29 ☐ On Site Datum ☐ Other

6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).

BENCHMARK: NJTP PISCATAWAY CORPS ARP
ELEV.= 109.56' (NAVD 88 DATUM)

7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature:

Date 12/21/2017

Surveyor's Name: Steven D. Parent

License Number: 24GS03626900

Firm Name: DPK Consulting, LLC

Certificate of Authorization #: 24GA28042200

Mailing Address 220 Old New Brunswick Road Suite 201

City/Town: Piscataway State New Jersey Zip Code: 08854

Phone Number 732.764.0100 Ext.: Fax: 732.764.0990

SP-3

DWR-133M (4/90) SERIAL # 19960

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

2625 338
2625 339
2625 340

Mail to
Water Allocation
CN 029
Trenton, N.J. 08625

Permit No. 25

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD # 26.31.697

Owner Amerada Hess (Port Reading Corp)
Address Hess Plaza
Woodbridge, NJ 07095
Name of Facility Port Reading Refinery
Address 750 Cliff Road
Port Reading, NJ 07064

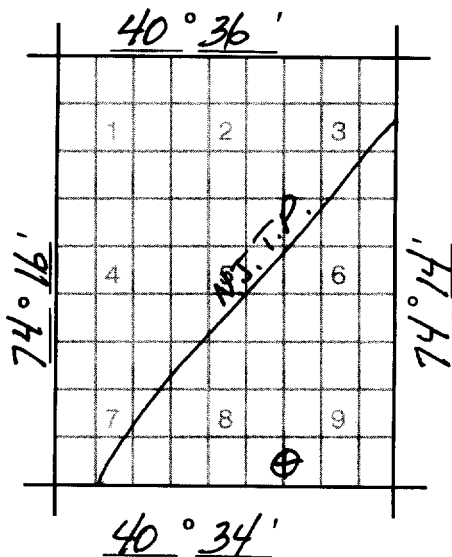
Driller Environmental Drilling Inc.
Address 328 Stafford Forge Rd.,
West Creek, NJ 08092

Diameter of Well(s)	2	Inches	Proposed Depth of Well(s)	12	Feet
# of Wells Applied for (max. 10)	3		Will pumping equipment be installed? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
Type of Well (see reverse)	Piezometer		If Yes, give pump capacity	NA	GPM

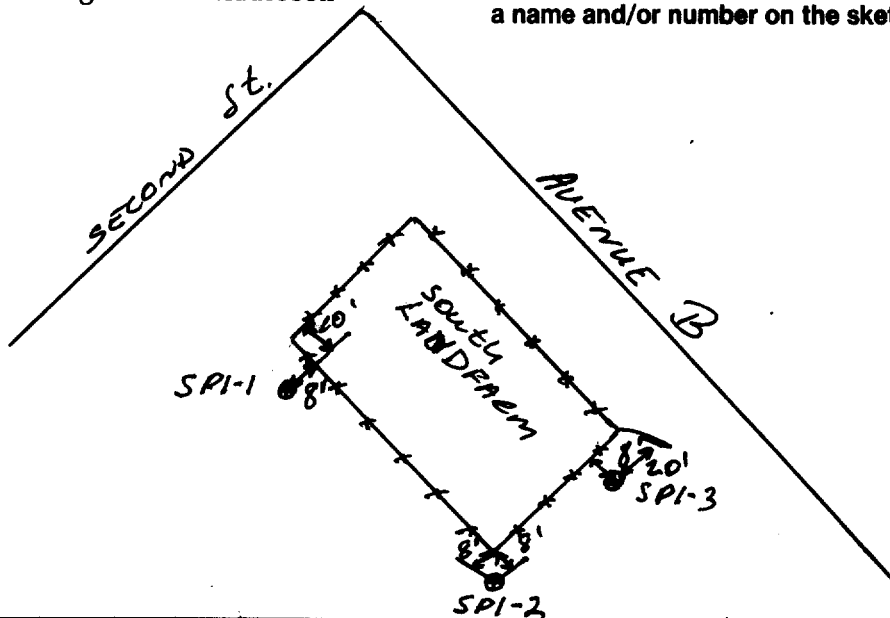
LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
1	760-B	Woodbridge	Middlesex

State Atlas Map No. 26



Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



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- ☐ Spill Fund Case
- ☐ ECRA Case
- ☐ CERCLA (Superfund) Site
- ☒ RCRA Site
- ☐ Underground Storage Tank
- ☐ NJPDES Municipal Discharge Permit
- ☐ NJPDES Industrial Discharge Permit
- ☐ Div. Hazardous Waste Mgmt. Enforcement Case
- ☐ Div. Water Resources Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well
- ☒ Other (explain) Bureau of Groundwater Pollution Abatement Directors

Case I.D. Number _____

This Space for Approval Stamp
WELL PERMIT
Dept. of Environmental Protection
Water Resources/Water Allocation
JUN 5 1991

FOR D.E.P. USE ☐ Issuance of this permit is subject to the conditions attached. (see next page) ☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.
☐ For monitoring purposes only

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

NJ-1036
Date 6-4-91

Signature of Driller E. Hauge License # 1130
Signature of Owner Paul McDonald (908 750-6000)
Health Dept. — Yellow Owner — Blue Driller — White

COPIES: Water Allocation — White and Pink

WELPMT 070 1156



MONITORING WELL RECORD

Well Permit No. 26 - 25340
Atlas Sheet Coordinates 26 : 31 : 697OWNER IDENTIFICATION - Owner AMERADA HESS (PORT READING)
Address HESS PLAZA
WOODBIDGE
City _____ State NJ Zip Code 07075WELL LOCATION - If not the same as owner please give address. Owner's Well No. SPS-10 (SPS-3)
County Middlesex Municipality WOODBIDGE TWP Lot No. 1 Block No. 760-B
Address 750 Cliff Road, Port Reading, NJTYPE OF WELL (as per Well Permit Categories) PIEZOMETER Date well completed 6 / 06 / 91
Regulatory Program Requiring Well RCRA Case I.D. # _____CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Amerada Hess Tele. # 908 750-6000

WELL CONSTRUCTION

Total depth drilled 15 ft.Well finished to 15 ft.

Borehole diameter:

Top 8 in.Bottom 8 in.Well was finished: ☒ above grade
☐ flush mountedIf finished above grade, casing
height (stick up) above land
surface 2 ft.

Was steel protective casing installed?

☐ Yes ☒ NoStatic water level after drilling 2 1/2 ft.Water level was measured using M ScopeWell was developed for 2 hours at 2+ gpmMethod of development Submersible pumpWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity NA gpmPump type: NADrilling Method Stem AugerDrilling Fluid NA Type of Rig Mobile B-57Name of Driller Earl HaugeHealth and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1130 ENVIRONMENTAL DRILLING, INC.

Name of Drilling Company _____

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	+2	5'	2"	PVC
Outer Casing (Not Protective Casing)	NA	NA	NA	
Screen (Note slot size)	5'	15'	2"	PVC Slot .010
Tail Piece	NA	NA	NA	
Gravel Pack	3'	15'	8"	# 1 Gravel
Annular Seal/Grout	0'	3'	8"	Cement
Method of Grouting	Gravity			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0'-15' dark silt and sand

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Date 7/12/91



New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: AMERADA HESS CORPORATION
List all AKAs: BUCKEYE PORT READING TERMINAL LLC
Street Address: 750 CLIFF ROAD
Municipality: WOODBRIDGE TOWNSHIP (PORT READING) (Township, Borough or City)
County: MIDDLESEX Zip Code: 07064
Program Interest (PI) Number(s): 006148 Case Tracking Number(s): VARIOUS

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner: AMERADA HESS CORPORATION
2. Well Location (Street Address): 750 CLIFF ROAD
3. Well Location (Municipal Block and Lot): Block #: 760.02 Lot #: 2

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): 2600025340
2. Site Well Number (As shown on application or plans): SP-3
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:
Latitude: North: 40 ° 33 ' 40.613 " Longitude: West: 74 ° 14 ' 24.471 "
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
North: 629478.15 East: 564323.96
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 9.33
Elevation Top of Outer casing: 9.60 Elevation of ground: 9.59
Check one: ☒ NAVD 88 ☐ NGVD 29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)
NAVD 88
7. Significant observations and notes:
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, LLC

SECTION D. LAND SURVEYOR'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

Professional Land Surveyor's Signature:

Surveyor's Name: James M. Stewart, PLS

Firm Name: Dennis W. Sklar, Inc.

Mailing Address: 2837 Ogden Avenue

City/Town: Bensalem

Phone Number: 215-268-7988

Date: December 9, 2014

License Number: 24GS02610800

Certificate of Authorization #: 24GA28150900

State: PA

Zip Code: 19020

Ext: N/A

Fax: 215-268-7966